

REMARKS

Claims 1, 24, 26, and 34 are amended. Claims 27-31, 52-54, 99-124, 127, and 128 are canceled. Claims 1-11, 16-26, 32-42, 44-51, 125, 126, and 129 are in the application for consideration.

The following is provided as Applicant's "Substance of the Interview". In Examiner's Interview Summary, a page 3 is included which is identified as a "Continuation of Substance of Interview including . . . any other comments". The undersigned disagrees that most all of that to which the Examiner perhaps asserts was discussed during the interview on page 3 was so discussed. That to which the Examiner refers are essentially mostly "other comments" and assertions which the Examiner apparently arrived at subsequent to the interview as such was not discussed with the undersigned during the interview. During the interview, the undersigned hereby respectfully asserts that what was discussed were the arguments as presented by Applicant in its response filed in November 2006. Each of the independent claims was discussed, as were the arguments of allowability therefore as asserted by Applicant in its November 2006 filed response. No agreement was reached. Nevertheless, the Examiner's comments on page 3 of the Interview Summary are inherently of record and are addressed below.

The claims which have been canceled herein are done so to expedite prosecution, and without any admission or agreement as to the propriety of the rejections thereof in the Examiner's Office Action of February 28, 2007.

Such are canceled without prejudice, with Applicant preserving the right to submit such subsequently in this application or another application claiming priority to this application.

§112 Rejections And Claim Objections

Independent claims 1, 34, and 129 remain in the application. Such are each rejected under 35 U.S.C. §112, first paragraph, as containing subject matter not described in the Specification as respects enablement. Without agreeing to the propriety of the Examiner's assertion, independent claims 1 and 34 have been amended to recite that the treating is void of depositing any layer onto the exposed oxide-containing surface during any of said treating. Such is inherently and literally supported in Applicant's specification paragraph [0021] as-filed. Accordingly, no new matter is added and Applicant clearly discloses and teaches that the subject treating can result in no layer being deposited by the act of such treating.

Paragraph [0026], to which the Examiner refers, regards one embodiment wherein a capacitor dielectric region is treated during its formation with at least one of a borane or silane thereby incorporating such into the capacitor dielectric layer.¹ Further in paragraph [0026], Applicant only asserts that the silane or borane "might" result in boron or silicon

¹ Such may or may not occur in the context of Applicant's claim-recited subparagraph which starts with "forming a capacitor dielectric region . . ." in each of Applicant's independent claims 1 and 34. However, such is immaterial to Applicant's claim 1 and claim 34 subsequently recited "treating" subparagraph whereby such occurs without depositing any layer onto the exposed oxide-containing surface during any of such treating.

incorporation into the capacitor dielectric. Accordingly, there is no assertion in paragraph [0026] that such definitely will or inherently must be so incorporated. Further, paragraph [0026] describes but only one embodiment. Other embodiments are described (i.e., in paragraph [0021]) wherein treatment is stated to occur after formation of the dielectric region and may result in no layer being deposited. Further as respects enablement, Applicant even provides reduction-to-practice examples in Fig. 4.

Accordingly, Applicant's amended claims 1 and 34 are literally supported by its disclosure, and in a manner by which a person of skill in the art is able to duplicate the invention. Accordingly in light of the above amendments and argument, it is respectfully requested that the Examiner withdraw the §112 first paragraph rejections of claims 1 and 34.

The Examiner also asserts that independent claim 129 is not supported by the original specification which allegedly only states that the treating steps involve at least one borane or at least one silane, but not both. For such, the Examiner relies upon paragraph [0023] and [0020]. Paragraph [0023] refers to Fig. 4 which is but one example embodiment of control versus treating, in one case with SiH₄ and in another case with B₂H₆. By providing these specific examples in its disclosure, Applicant in no way is limiting its disclosure to not enabling the possibility of using both a borane and a silane.

Indeed, Applicant's paragraph [0020] specifically provides:

Referring to Fig. 2, exposed oxide containing surface 18 of capacitor dielectric region 16 is treated with at least one of a borane or a silane (including, of course, treatment with both).

Accordingly, Applicant's original specification clearly and expressly supports treatment with both. Accordingly, it is respectfully requested that the Examiner withdraw the 35 U.S.C. §112 first paragraph rejection with respect to claim 129.

Applicant disagrees with the claim objections made to claims 24 and 26. Nevertheless, such claims have been amended in a manner which is believed to overcome the Examiner's objections, yet in no way changes the meaning or scope of such claims. Entry of the same is requested, as well as withdrawal of the claim objections to claims 24 and 26.

Prior Art Rejections

Independent claim 1 stands newly rejected as being anticipated by U.S. Patent No. 6,815,289 to Hirano et al. Applicant requests the Examiner's reconsideration.

Amended claim 1 requires treating of the exposed oxide-containing surface of the capacitor dielectric region with at least one of a borane or a silane without depositing any layer onto the exposed oxide-containing surface during any of said treating, as asserted above. Hirano et al. does not disclose such. The Examiner mistakenly asserts that Hirano et al. teaches treating its exposed oxide-containing surface of the capacitor dielectric region with at least one silane to form a silicon dioxide layer 34, relying on col.6, Ins.25-40. However, layer 34 is stated to be a gate electrode, not a silicon dioxide layer. Regardless, the Examiner's assertion is that Hirano et al. teaches to "form a silicon dioxide layer" with at least one silane, and yet Applicant's amended claim 1 recites that the stated treating does not deposit any layer onto the stated exposed oxide-containing surface during any of said treating. Accordingly even were the Examiner's assertion correct, such relies upon forming something which Applicant specifically precludes, namely another layer.

Further, col.6, Ins.25-40 upon which the Examiner relies relates to formation or treating of electrode 34 prior to any deposition or formation of dielectric region 35. Applicant's independent claim 1 is directed to treating of an exposed oxide-containing surface of a capacitor dielectric region after

its formation. The undersigned finds no disclosure at col.6, Ins.25-40, or elsewhere in Hirano et al., of treating its dielectric region 35 with at least one of a borane or a silane regardless of whether any layer is deposited thereon. For at least these reasons, Applicant's amended independent claim 1 is not anticipated by Hirano et al., and the rejection thereover should be withdrawn.

Applicant's independent claim 34 stands rejected as being obvious over a combination of Hirano et al. and Choi et al. Applicant's independent claim 34 is also amended to recite that the treating is void of depositing any layer onto the exposed oxide-containing surface during any of said treating. Hirano et al. is inapplicable to this aspect of claim 34 essentially for the same reasons argued above with respect to Hirano et al. and claim 1. Choi et al. does not cure this deficiency in Hirano et al. Therefore, Hirano et al. and Choi do not encompass all of the limitations of Applicant's independent claim 34, and the obviousness rejection thereover should be withdrawn. Action to that end is requested.

Independent claim 129 remains un-amended in the application, and requires that both of borane and silane be used in the stated treating. The Examiner indicates on page 3 of the last action that claim 129 was interpreted for purposes of prosecution as only requiring treatment with a borane or a silane. Regardless of the proprietary of examining claim 129 in such manner in the last Office Action, claim 129 must be examined herein in the manner in which it is literally stated/worded, namely requiring both a

silane and a borane, as argued above. Independent claim 129 stands rejected as being anticipated by Hirano et al. However, such reference does not disclose treating with both a borane and a silane. Accordingly, the anticipation rejection thereover should be withdrawn, and action to that end is requested.

Independent claim 129 also stands rejected as being obvious over a combination of Hirano et al., Merchant, and Kudoh. However, these references, whether taken alone or in combination, do not suggest treating of an exposed oxide-containing surface of a capacitor dielectric region with both at least one borane and at least one silane. Accordingly, the obviousness rejection thereover should be withdrawn, and action to that end is requested.

Applicant's dependent claims should be allowed as depending from allowable base claims, and for their own recited features which are neither shown nor suggested in the cited art.

An earnest attempt has been made to place this application into immediate condition for allowance at least by amendment and by minimizing independent claims for the Examiner's consideration. It is respectfully asserted, however, if the Examiner's next action is to be anything other than a Notice of Allowance, that the Examiner is precluded from making any next such subsequent action final if a prior art-only rejection of claim 129 cites new art. This is because the Examiner has admitted on the record that Applicant's independent claim 129 was only reviewed in the context of the prior art upon which the Examiner relies as requiring treatment with only a borane or a silane. The undersigned respectfully argued above why such was inappropriate, and claim 129 has not been amended herein. Accordingly, the undersigned respectfully asserts that the Examiner need examine claim 129 herein in a subsequent action as it is literally worded and, if not so allowed, should make any next such action non-final.

Respectfully submitted,

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By: 
Mark S. Matkin
Reg. No. 32,268